

EASTERN UNIVERSITY, SRI LANKA
Faculty of Commerce and Management
Special Examination for Final Year - Examination in
BBA/B.Com/B.Econ -2005/2006 (February-2008)
MGT – 2012 Systems Analysis and Design

Answer all questions

Time: 2 Hours

Q1.

- (a) What is meant by an object-oriented approach to systems analysis and design? Give two reasons why this might have important advantages over older, more conventional, procedural approaches.
- (06 marks)**
- (b) Describe the main stages and deliverables in the analysis and design phases of the System Development Life Cycle (SDLC).
- (05 marks)**
- (c) ABC Ltd is a medium-sized manufacturing company, with separate departments for the major activities of the business. Each department is currently responsible for its own purchase ordering and goods received system.

A new system of purchase ordering and goods received is proposed, whereby goods are requisitioned by the user departments, but are ordered centrally. Items that are common to several departments, e.g. stationery, will also be stored and issued centrally.

The new purchasing department will obtain quotations from suppliers and raise purchase orders. One copy of the order will be sent to the supplier, a second copy sent to the requisitioner, and a third copy retained in a purchase order file.

When the goods are delivered to the central warehouse, the accompanying deliver note will be checked against the goods, and a goods received note (GRN) raised.

A copy of the GRN will be sent to the purchasing department for comparison with the copy order. Matched GRNs and copy orders are filed together, and any queries placed in a queries file. When the invoice arrives in the purchasing department for recorded with the order and GRN. If approved, the invoice is passed to the accounts department for recording and payment, and the GRN and copy order are filed in a 'completed orders' file. If it is not approved, the documents are placed on the queries file.

Requirement

Draw a document flow diagram of the proposed purchase ordering and goods received system as described above. You may use any symbols with which you are familiar, provided that you define what they stand for.

(18 marks)

(Total Marks 29)

Q2.

(a) Define the following terms:

Object, Class, Encapsulation, Inheritance and Polymorphism

(10 marks)

(b) The Sampath Bank is a new bank that will be available in the Batticaloa town area this December. The bank's primary function is to offer a savings and loan facility with efficient customer service. It also offers a credit card facility with very competitive interest rates.

The main transaction that takes place is a withdrawal from an account. The bank has ATMs (Automatic Teller Machines). Bank customers are issued with an ATM card, which has an associated PIN (Personal Identification Number).

Assuming that a customer wishes to withdraw Rs.1000, they insert their ATM card into the ATM. They then key in their four digits PIN. The system checks the PIN against the card number on the database. If it is the correct PIN the customer can proceed to perform their banking transaction. If the PIN is incorrect they are given two more opportunities to enter the correct PIN before the ATM keeps the card and the transaction cannot go ahead.

Assuming the PIN is correct, the customer enters the amount they wish to withdraw and the system checks the balance of the account to ensure that there are sufficient funds for the withdrawal. Assuming that the account balance is sufficient, the customer is given the money and a receipt with the account details, amount of withdrawal and new balance. If there is insufficient money in the account, the transaction is refused and the customer can try again with another transaction. When the customer has collected the money, receipt and their card, the transaction is complete.

Requirement

- (i) Draw a Context Diagram for the Sampath bank ATM.
- (ii) Draw a First Level Data Flow Diagram for the Sampath bank ATM.
- (iii) Construct a Logical Data Flow Diagram modeling the transaction to withdraw Rs.1000 from the Sampath bank ATM.

(17 marks)

(Total Marks 27)

Q3.

- (a) Explain the steps involved in creating a data flow diagram (DFD).

(06 marks)

- (b) What are the features of good software design? In what way can design patterns improve the design of systems?

(08 marks)

- (c) What is Human Computer Interaction? Why it is important in designing an effective system?

(06 marks)

(Total Marks 20)

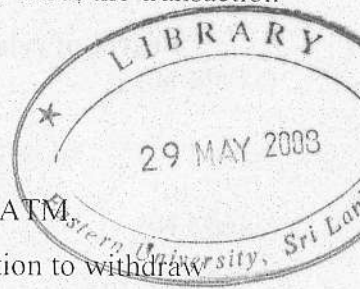
Q4.

- (a) Why is it necessary for quality assurance checks to be separated from system development?

(06 marks)

- (b) Define two common roles used in inspections. What are the roles used in walkthroughs?

(06 marks)



- (c) The ABC library is currently undertaking a data analysis exercise with a view to computerizing its operations. The library records are about to be put into a relational database. There are currently 200,000 book titles in stock and each title may have up to five copies. A member of the association may borrow a copy for up to three weeks, and can make reservations of a book title if all the copies are on loan. Failure to return a book before the loan expires will result in a fine.

Prepare an entity relationship model for the library system, including the degree of relationship between the entities in the model.

(12 marks)

(Total Marks 24)